

BIOGRAPHICAL SKETCH

NAME CHAN, Edward K.L., Ph.D.	POSITION TITLE		
eRA COMMONS USER NAME eklchan	Professor, Department of Oral Biology and Department of Anatomy and Cell Biology		
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of British Columbia, Vancouver, British Columbia, Canada	B.Sc.	1976	Biochemistry
University of Calgary, Calgary, Canada	M.Sc.	1980	Clinical Chemistry
University of Calgary, Calgary, Canada	Ph.D.	1984	Immunopathology

A. Postions and Honors

Experience: 1984-86: Research Fellow, Scripps Clinic and Research Foundation, La Jolla, California (Laboratory of Dr. Eng M. Tan); 1986-88: Research Associate; 1988-90: Senior Research Associate, Scripps Clinic and Research Foundation; 1990-96: Assistant Member; 1997-2002: Associate Professor, Department of Molecular & Experimental Medicine, The Scripps Research Institute, La Jolla, California; 2002: Professor, Department of Oral Biology, College of Dentistry; 2004: Professor, Department of Anatomy and Cell Biology, College of Medicine, University of Florida, Gainesville, Florida; 2005-: Vice Chairman, Autoantibody Standardization Committee in Rheumatic and Related Disorders of the International Union of Immunological Societies (IUIS), the World Health Organization (WHO), the Arthritis Foundation (AF), and Centers for Disease Control and Prevention (CDC).

Honors and Awards: 1983-86: Alberta Heritage Foundation for Medical Research Fellowship Award; 1985 and 1986: American Rheumatism Association Western Region Fellows Awards; 1986-89: Arthritis Foundation Fellowship Award; 1987: American Rheumatism Association Senior Rheumatology Scholar Award; 1989-91: Arthritis Foundation Investigator Award; 2008-2010: University of Florida Research Foundation (UFRF) Professorship.

Professional Societies: American College of Rheumatology, American Society for Cell Biology, American Association for Cancer Research, Kunkel Society, American Association for Dental Research.

Review Committees: 1995-1999, Member, General Medicine A-1 Study Section, NIAMS; 1999-2001, Member, Molecular Biology and Genetics Study Section, Arthritis Foundation; 2004-present, Ad Hoc NIH CSR Panels.

B. Selected Publications *(from 140)*

Chen, C.Y., Gherzi, R., Ong, S.E., **Chan, E.K.L.**, Raijmakers, R., Puijn, G.J.M., Stoecklin, G., Moroni, C., Mann, M., Karin, M. (2001) AU binding proteins recruit the exosome to degrade ARE-containing mRNAs. *Cell* 107, 451-464.

Marra, P., Maffucci, T., Daniele, T., Di Tullio, G., Ikehara, Y., **Chan, E.K.L.**, Luini, A., Mironov, A., and De Matteis, M.A. (2001) The Golgi matrix proteins GM130 and GRASP65 cycle through a novel subdomain of the intermediate compartment. *Nature Cell Biol.*, 3:1101-1113.

Wang, D., Buyon, J.P., Yang, Z., DiDonato, F., Miranda-Carus, M.E., and **Chan, E.K.L.** (2001) Leucine zipper domain of 52kDa SS-A/Ro promotes protein dimer formation and inhibits in vitro transcription activity. *Biochim Biophys Acta*, 1568:155-61.

Eystathioy, T., Peebles, C.L., Hamel, J.C., Vaughan, J.H., and **Chan, E.K.L.** (2002) Autoantibody to hLSm4 and the heptameric LSm complex in anti-Sm sera. *Arthritis Rheum.*, 46:726-734.

Eystathioy, T., **Chan, E.K.L.**, Tenenbaum, S.A., Keene, J.D., Griffith, K., and Fritzler, M.J. (2002) A phosphorylated cytoplasmic autoantigen, GW182, associates with a unique population of human mRNAs within novel cytoplasmic speckles. *Mol. Biol. Cell* 13: 1338-51.

Soo-Hoo, L., Zhang, J.Y., and **Chan, E.K.L.** (2002) Cloning and characterization of a novel 90kDa "companion" autoantigen of p62 overexpressed in cancer. *Oncogene* 21:5006-5015.

Nozawa, K., Casiano, C.A., Hamel, J.C., Molinari, C., Fritzler, M.J., and **Chan, E.K.L.** (2002) Fragmentation

- of Golgi complex and Golgi autoantigens during apoptosis and necrosis. *Arthritis Res.* 4:R3.
- Eystathioy, T., **Chan, E.K.L.**, Mahler, M., Luft, L.M., Fritzier, M.L., and Fritzier, M.J. (2003) A panel of monoclonal antibodies to cytoplasmic GW bodies and the mRNA binding protein GW182. *Hybridoma & Hybridomics*, 22:79-86.
- Eystathioy, T., Jakymiw, A., **Chan, E.K.L.**, Séraphin, B., Cougot, N., and Fritzier, M.J. (2003) The GW182 protein co-localizes with mRNA degradation associated proteins hDcp1 and hLSm4 in cytoplasmic GW bodies. *RNA* 9:1171-1173.
- Koziol, J.A., Zhang, J.Y., Casiano, C.A., Peng, X.X., Shi, F.D., Feng, A.C., **Chan, E.K.L.**, and Tan, E.M. (2003) Recursive partitioning as an approach to selection of immune markers for tumor diagnosis. *Clinical Cancer Research*, 9:5120-5126.
- Clancy, R.M., **Chan, E.K.L.**, Chandrashekhar, S., and Buyon, J.P. (2003) Does the cellular localization of antigens in or on apoptotic blebs influence the pathogenicity or benefit of cognate antibodies? *Arthritis Rheum.* 48:2080-2082.
- Fritzier, M.J., Wiik, A., Tan, E.M., Smolen, J.S., McDougal, J.S., **Chan, E.K.L.**, Gordon, T.P., Hardin, J.A., Kalden, J.R., Lahita, R.G., Maini, R.N., Reeves, W.H., Rothfield, N.F., Takasaki, Y., Wilson, M., Byrd, M.G., Slivka, L., and Koziol, J.A. (2003) A critical evaluation of enzyme immunoassay kits for detection of antinuclear autoantibodies of defined specificities. III. Comparative performance characteristics of academic and manufacturers' laboratories. *J. Rheumatol.* 30:2374-2381.
- Eystathioy, T., **Chan, E.K.L.**, Takeuchi, K., Mahler, M., Luft, L.M., Zochodne, D.W., and Fritzier, M.J. (2003) Clinical and serological associations of autoantibodies to GW bodies and a novel cytoplasmic autoantigen GW182. *J. Mol. Med.*, 81:811-818.
- Luft, L., Barr, S., Miller, B.J., **Chan, E.K.L.**, and Fritzier, M.J. (2003) Autoantibodies to tissue transglutaminase (tTG) in Sjögren's syndrome and related rheumatic diseases. *J. Rheumatol.*, 30:2613-2619.
- Nozawa, K., Fritzier, M.J., von Mühlen, C.A., and **Chan, E.K.L.** (2004) Giantin is the major Golgi autoantigen in human anti-Golgi complex sera. *Arth. Res. Ther.* 6:R95-R102.
- Julkunen, H., Miettinen, A., Walle, T.K., **Chan, E.K.L.**, and Eronen, M. (2004) Autoimmune response in mothers of children with congenital and postnatally diagnosed isolated heart block: a population based study. *J. Rheumatol.* 31:183-189.
- Yang, Z., Jakymiw, A., Wood, M.R., Eystathioy, T., Rubin, R.L., Fritzier, M.J., and **Chan, E.K.L.** (2004) GW182 is critical for the stability of GW bodies expressed during the cell cycle and cell proliferation. *J. Cell Sci.* 117:5567-78.
- Shi, F.D., Zhang, J.Y., Liu, D., Rearden, A., Elliot, M., Nachtsheim, D., Daniels, T., Casiano, C.A., Heeb, M.J., **Chan, E.K.L.**, and Tan, E.M. (2005) Preferential humoral immune response in prostate cancer to cellular proteins p90 and p62 in a panel of tumor associated antigens. *Prostate* 63:252-258.
- Himoto, T., Kuriyama, S., Zhang, J.Y., **Chan, E.K.L.**, Nishioka, M., and Tan, E.M. (2005) Significance of autoantibodies against insulin-like growth factor II mRNA-binding proteins in patients with hepatocellular carcinoma. *Int J Oncol.* 26:311-7.
- Lu, Y., Ye, P., Chen, S.-L., Tan, E.M., and **Chan, E.K.L.** (2005) Identification of kinectin as a novel Behcet's disease autoantigen. *Arthritis Res. Ther.* 7:R1133-1139.
- Clancy, R.M., Buyon, J.P., Ikeda, K., Nozawa, K., Argyle, D.A., Friedman, D.M., and **Chan, E.K.L.** (2005) Relationship of maternal antibody responses to the 52kD SS-A/Ro p200 peptide and the development of fetal conduction defects. *Arthritis Rheum.* 52:3079-3086.
- Himoto, T., Kuriyama, S., Zhang, J.Y., **Chan, E.K.L.**, Kimura, Y., Masaki, T., Uchida, N., Nishioka, M., and Tan, E.M. (2005) Analyses of autoantibodies against tumor-associated antigens in patients with hepatocellular carcinoma. *Int J Oncol.* 27:1079-1085.
- Meghiorino, R., Shi, F.D., Peng, X.X., Wang, X., **Chan, E.K.L.**, Tan, E.M., and Zhang, J.Y. (2005) Autoimmune response to anti-apoptotic protein survivin and its association with antibodies to p53 and c-myc in human malignancies. *Cancer Detect. Prev.* 29:241-8.
- Jakymiw, A., Lian, S., Li, S., Eystathioy, T., Li, S., Satoh, M., Hamel J.C., Fritzier, M.J., and **Chan, E.K.L.** (2005) Disruption of GW bodies impairs mammalian RNA Interference. *Nature Cell Biol.* 7:1267-74.
- Lian, S., Jakymiw, A., Eystathioy, T., Hamel, J.C., Fritzier, M.J., and **Chan, E.K.L.** (2006) GW bodies, microRNAs and the cell cycle. *Cell Cycle*, 5:242-5.
- Jakymiw, A., Ikeda, K., Fritzier, M.J., Reeves, W.H., Satoh, M., and **Chan, E.K.L.** (2006) Autoimmune targeting of key components of RNA interference. *Arthritis Res. Ther.*, 8:R87.
- Yamasaki, Y., Yamada, H., Nozaki, T., Akaogi, J., Nichols, C., Lyons, R., Loy, A.C., **Chan, E.K.L.**, Reeves,

- W.H., and Satoh, M. (2006) Unusually high frequency of autoantibodies to PL-7 associated with milder muscle disease in Japanese patients with polymyositis/dermatomyositis. *Arthritis Rheum.* 54:2004-2009.
- Yamasaki, Y., Narain, S., Hernandez, L., Barker, T., Ikeda, K., Segal, M.S., Richards, H.B., **Chan, E.K.L.**, Reeves, W.H., and Satoh, M. (2006) Autoantibodies to the replication protein A complex in SLE and other autoimmune diseases. *Arthritis Res. Ther.* 8:R111.
- Yamasaki, Y., Narain, S., Ikeda, K., Honkannen-Scott, M., Hernandez, B.S., Barker, T., Richards, H.B., **Chan, E.K.L.**, Reeves, W.H., and Satoh, M. (2006) Nucleolar staining cannot be used as a screening test for the scleroderma marker anti-RNA polymerase I/III antibodies. *Arthritis Rheum.* 54:3051-6.
- Pauley, K.M., Eystathioy, T., Jakymiw, A., Hamel J.C., Fritzler, M.J., and **Chan, E.K.L.** (2006) Formation of GW bodies is a consequence of miRNA genesis. *EMBO reports* 7:904-910.
- Ikeda, K., Satoh, M., Pauley, K.M., Fritzler, M.J., Reeves, W.H., and **Chan, E.K.L.** (2006) Detection of the argonaute protein Ago2 and microRNAs in the RNA induced silencing complex (RISC) using a monoclonal antibody. *J. Immunol. Methods* 317:38-44.
- Zhang, J.Y., Megliorino, R., Peng, X.X., Tan, E.M., Chen, Y., and **Chan, E.K.L.** (2007) Antibody detection using tumor-associated antigen mini-array in immunodiagnosing human hepatocellular carcinoma. *J. Hepatol.* 46:107-114.
- Yamasaki, Y., Narain, S., Yoshida, H., Hernandez, L., Barker, T., Hahn, P.C., Sobel, E.S., Richards, H.B., **Chan, E.K.L.**, Reeves, W.H., and Satoh, M. (2007) Autoantibodies to RNA helicase A: A new serological marker of early lupus. *Arthritis Rheum.* 56:596-604.
- Kopp, K., Gasiorowski, J. Z., Chen, D., Gilmore, R., Norton, J.T., Wang, C., Leary, D.J., **Chan, E.K.L.**, Dean, D.A., and Huang, S. (2007) Pol I transcription and pre-rRNA processing are coordinated in a transcription dependent manner in mammalian cells. *Mol. Biol. Cell* 18:394-403.
- Chan, E.K.L.**, Fritzler, M.J., Wiik, A., Andrade, L.E.C., Reeves, W.H., Tincani, A., Meroni, P.L., and the IUIS/WHO/AF/CDC committee for the standardization of autoantibodies in rheumatic and related diseases. (2007) AutoAbSC.Org – Autoantibody Standardization Committee in 2006. *Autoimmunity Reviews* 6:577–580.
- Junttila, M.R., Puustinen, P., Niemelä, M., Ahola, R., Arnold, H., Bottzauw, T., Ala-aho, R., Nielsen, C., Ivaska, J., Taya, Y., Lu, S., Lin, S., **Chan, E.K.L.**, Wang, X.J., Grenman, R., Kast, J., Kallunki, T., Sears, R., Kähäri, V., and Westermarck, J. (2007) CIP2A inhibits PP2A in human malignancies. *Cell* 130:51-62.
- Bhanji, R.A., Eystathioy, T., **Chan, E.K.L.**, Bloch, D.B., and Fritzler, M.J. (2007) Clinical and serological features of patients with autoantibodies to GW/P Bodies. *Clin. Immunol.* 125:247-256.
- Lian, S., Fritzler, M.J., Katz, J., Hamazaki, T., Terada, N., Satoh, M., and **Chan, E.K.L.** (2007) Small interfering RNA-mediated silencing induces target-dependent assembly of GW/P bodies. *Mol. Biol. Cell,* 18:3375-87.
- Moser, J.J., Eystathioy, T., **Chan, E.K.L.**, and Fritzler, M.J. (2007) Markers of mRNA stabilization, degradation and RNAi within astrocytoma GW bodies. *J. Neuroscience Res.* 85:3619-3631.
- Nozawa, K., Fritzler, M.J., Ikeda, K., Takasaki, Y., Satoh, M., and **Chan, E.K.L.** (2008) Differential anti-Golgi complex autoantibody production in murine lactate dehydrogenase-elevating virus infection. *Immunopharmacology and Immunotoxicology* 30:13-25.
- Kakumanu, P., Yamagata, H., Sobel, E.S., Reeves, W.H., **Chan, E.K.L.**, and Satoh, M. (2008) Patients with pulmonary tuberculosis are frequently positive for anti-CCP antibodies but they also react with unmodified arginine peptide. *Arthritis Rheum*, in press.

Selected Chapters/Reviews: (from 40)

- Zhang, J.Y. and **Chan, E.K.L.** (2005) Tumor specific autoimmune responses - Why and when do they develop? In *Methods, Possibilities and Perspectives of Pre-symptomatic Tumor Diagnostics*. Edited by Conrad, K., Sack, U., and Bachmann, M. Pabst Scientific Publishers, Lengerich, Germany, pp35-42.
- Chan, E.K.L.** (2006) Autoantibodies and the cloning and characterization of cellular constituents. In *Autoantibodies and Autoimmunity: Molecular Mechanisms in Health and Disease*. Edited by K. Michael Pollard, Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim, Germany, Chapter 18, pp419-446.
- Chan, E.K.L.**, Burlingame, R.W., and Fritzler, M.J. (2006) Detection of autoantibodies using immobilized natural and recombinant autoantigens. In *Manual of Molecular and Clinical Laboratory Immunology*, 7th ed. edited by Detrick, B., Hamilton, R.G., Folds, J.D., American Society for Microbiology Press, Washington, D.C. Chapter 114, pp1019-1026.
- Chan, E.K.L.**, Peebles, C., Fritzler, M.J., and Satoh, M. (2007) Anti-spliceosomal autoantibodies. In *Systemic Lupus Erythematosus: A Companion to Rheumatology*, edited by George C. Tsokos, Caroline Gordon, and

- Josef S. Smolen. Elsevier Science, San Diego, CA, Chapter 22G.
- Fritzler, M.J., and **Chan, E.K.L.** (2007) GW bodies, P bodies and components of the miRNA pathway. In *Autoantibodies*, 2nd edition, edited by Y. Shoenfeld, M.E. Gershwin, and P.L. Meroni. Elsevier Science, Chapter 34, pp257-262.
- Jakymiw, A., Pauley, K.M., Li, S., Lian, S., Ikeda, K., Eystathioy, T., Satoh, M., Fritzler, M.J., and **Chan, E.K.L.** (2007) The role of GW/P-bodies in RNA processing and silencing. *J. Cell Sci.*, 120:1317-1323.
- Satoh, M., **Chan, E.K.L.**, Sobel, E.S., Kimpel, D.L., Yamasaki, Y., Narain, S., Mansoor, R., and Reeves, W.H. (2007) Clinical implication of autoantibodies in patients with systemic rheumatic diseases. *Expert Rev. Clin. Immunol.* 3:721-738.
- Pauley, K.M., and **Chan, E.K.L.** (2008) MicroRNAs and their emerging roles in immunology. In: Noel R. Rose (ed), *The Year in Immunology*, Annals of the New York Academy of Sciences. Invited contribution.

C. Research Support

ONGOING

R01 AR051766 Reeves (PI) 12/01/2004 -11/30/2009
NIH / NIAMS

“Activation of innate immunity by small ribonucleoproteins”

The purpose of this project is to examine the role of highly structured cellular RNAs as ligands for TLR3 and PKR activation.

Role: investigator, 10% Effort Overlap: none

R01 AI47859 Chan (PI) 12/27/2006 - 12/26/2011
NIH / NIAID

“Antigens of the RNA-induced silencing complex in autoimmunity”

The major goals of this project are to define the role of RNA interference associated autoantigens in human autoimmune disease and mouse model of autoimmunity.

Role: P.I., 40% Effort Overlap: none

R03 CA117480 Pereira (PI) 09/01/2006 - 08/31/2008
NIH / NCI

“PNI relations among women with endometrial cancer”

The major goal of this project is to examine relations among stress, social support, diurnal salivary cortisol rhythm, and angiogenic cytokines in women undergoing surgery for suspected primary endometrial cancer.

Role: investigator, 2.5% Effort Overlap: none

COMPLETED (in the last 3 years)

R01 AR42455 Buyon (PI) 02/01/1994 - 01/31/2008
NIH / NIAMS

“Maternal Autoantibodies - Pathogenesis of Neonatal Lupus”

The major goals of this subproject are 1) to identify Ro and La ribonucleoprotein complexes selectively expressed in the human fetal heart, 2) if autoantigens associated with autoimmune congenital heart block (CHB) come to the surface membrane of cardiocytes during apoptosis thus being accessible to the maternally transmitted autoantibodies.

R13 AI068372 Chan (PI) 09/01/2005 - 08/31/2006
NIH / NIAID

“9th International Workshop on Autoantibodies & Autoimmunity”

To provide support and travel for invited speakers at the named conference held in Gainesville, FL, Sept., 2005.